DPD-0362-61

18 January 1961

MEMORANDUM FOR : Assistant Chief, DPD-DD/P

SUBJECT : C-130B/C-130E Comparison

REFERENCE : DPD-0296-61

1. The C-130E documents received from Lockheed Aircraft Corporation have been reviewed, and some comparisons with the C-130B operational capabilities have been made. Tabulated and graphical presentations are attached to this memorandum. It should be noted, however, that all data on the C-130E are calculated adjustments of the C-130B flight test results to account for the probable drag effects of the external pylons and pylon tanks. Until such time as the C-130E is flown and tested to verify these estimates, they should only be regarded as approximate figures.

2. It is also prudent to note that the C-130E and C-130B are essentially the same aircraft. The basic C-130B configuration has been engineered to permit fuel feeding from two externally mounted pylon tanks of 1,360 gallons each and structural changes to increase the allowable gross weight from 135,000 pounds to 155,000 pounds. The degree of modification is extensive and makes retrofitting a C-130B economically infeasible. These changes increase the basic operating weight from 69,300 pounds to 72,174 pounds. The C-130E also suffers a drag penalty caused by the pylon tanks.

3. The C-130E offers a substantial increase in range potential. The ferry range is 20 percent greater than that of the B. As cargo payload is increased, the percentage advantage increases to 30 percent improvement at the maximum payload of 32,676 pounds. It is possible to take this useful cargo load 3,200 nautical miles. No allowance is made here for the decrease in range to descend to and loiter in the DZ or the range increase that would be realized by discharging the cargo at some point in the profile.

4. These range increases do not completely obviate the utility of the C-130B. Due to the structural weight increases and the aerodynamic drag of the pylon tanks, the C-130E suffers a 5 percent

performance penalty. That is, for any given payload and range mission that lies within the C-130B capability, the C-130E will require approximately 5 percent more fuel and 5 percent more flying time. For a given gross weight, the altitude profiles will be very close to identical.

5. It should be possible to increase the C-130B range potential with an installation of Benson tanks as was accomplished on the C-130A model. This range increase would not be compromised by the drag penalty of external tanks. However, without the structural modifications to permit the increased gross weight, the weight of the internal tanks and each pound of fuel must be paid for in decreased cargo capacity, at a pound per pound balance. The decrease in cargo volume is a further compromise in using such an approach to gain range only.

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Attachments:
As cited
Distribution:
C-Asst Ch/DPD w/att
1-A/CH/DPD w/att
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